

REMARKS

In view of the above amendments and the following remarks, reconsideration of the rejections contained in the Office Action of July 13, 2007 is respectfully requested.

In the outstanding Office Action, the Examiner rejected independent claim 18 and dependent claims 19-23 and 28-30 as being anticipated by the Saito reference (US Publication 2003/0041968); rejected claims 24 and 25 as being unpatentable over the Saito reference in view of the JP '523 reference (Japanese Publication 10-012523); and rejected claims 26 and 27 as being unpatentable over the Saito reference in view of the Kobayashi reference (USP 6,497,240) or the Mitsumori reference (USP 6,230,722). However, independent claim 18 has now been slightly amended as indicated above to clarify the invention recited therein. For the reasons discussed below, it is respectfully submitted that amended independent claim 18 and the claims that depend therefrom are clearly patentable over the prior art of record.

Independent claim 18 has been amended so as to clarify the arrangement of the suction nozzle and the supply nozzle, and to further define the arrangement of those nozzles with respect to the substrate holder. A discussion of amended independent claim 18 will be provided below with reference to various portions of the present application, including the drawings and the substitute specification filed April 5, 2007. However, reference to specific portions of the present application is provided only for illustrative purposes, and is not intended to otherwise limit the scope of the claims to any particular embodiment.

As an initial matter, the Applicants note that independent claim 18 requires a substrate processing apparatus comprising a *suction* nozzle having a suction mouth *for sucking the processing liquid* on the peripheral portion of the upper surface of the substrate. The Examiner is apparently taking the position that pipe 4 illustrated in, for example, Figs. 2A-2C of the Saito reference constitutes such a suction nozzle. However, as explained in paragraph [0059] on page 4 of the Saito reference, item 4 is simply a liquid discharge pipe for allowing drainage of waste liquid which flows from the top of wafer W to the bottom of wafer W. In fact, as illustrated in Fig. 2B, the end of liquid discharge pipe 4 closest to the wafer W has an enlarged area to act as a funnel and capture the flowing liquid. Paragraph [0066] on page 5 of the Saito reference also

simply explains that the liquid discharge pipe 4 discharges waste liquid to the exterior of the chamber 14, and extends through the lower cantilever 20c. Thus, it appears that item 4 simply identifies a drainage pipe which allows drainage of excess liquid due to gravity, but does not identify a *suction* nozzle as recited in independent claim 18.

Independent claim 18 has now been amended so as to further define the arrangement of the suction mouth of the suction nozzle with respect to the open end of the supply nozzle. In particular, as illustrated in Figs. 2A-2C and described on page 17, line 24 through page 19, line 18 of the substitute specification, the suction mouth of the suction nozzle 21 and the open end of the supply nozzle 16 are both arranged so as to face the upper surface of the substrate (i.e., the same surface), as now recited in claim 18. This arrangement is important because, as also recited in independent claim 18, the substrate holder is operable to rotate the substrate at a speed low enough to allow the supplied processing liquid to *remain stationary* on the upper surface of the substrate during rotation of the substrate. In other words, the processing liquid does not flow by centrifugal force to the edge of the substrate W and then flow to the bottom surface of the substrate W. As a result, the suction mouth of the suction nozzle must face the same surface (i.e., the upper surface) as the open end of the supply nozzle. If the suction mouth of the supply nozzle is arranged to face the opposite surface (i.e., the bottom surface) of the substrate, then the suction nozzle would not be able to effectively suck the stationary processing liquid on the upper surface of the substrate (supplied by the supply nozzle) because the low rotational speed of the substrate ensures that the processing liquid remains on the upper surface of the substrate. In contrast, the Saito reference clearly teaches that the open ends of the supply nozzles 3a, 3b, and 3c each face the *upper* surface of the wafer W, but the mouth of the “suction” pipe 4 is arranged to face the *bottom* surface of wafer W (see Figure 2B of the Saito reference).

Finally, as illustrated particularly in Figs. 2A and 2C of the present application, the substrate holder is operable to rotate the substrate W in a direction such that the suction mouth of the suction nozzle 21 is located at a position *forward* of the open end of the supply nozzle 16 with respect to the rotational direction of the substrate. In contrast, the wafer holder of the Saito reference is operable to rotate the wafer W such that the mouth of discharge pipe (“suction”

nozzle) 4 is located at a position *rearward* of the open end of supply nozzles (3a, 3b, and 3c) of the Saito reference with respect to the rotation direction of the wafer W, as particular illustrated in Fig. 2C of the Saito reference. As a result, the liquid supplied to the substrate by the supply pipes 3b and 3c will be quickly discharged by the liquid discharge pipe 4 without remaining on the surface of the substrate for a sufficient period of time, in contrast to the present invention as illustrated in Figs. 2A and 2C of the present application.

As explained above, the Saito does not teach or suggest *any* suction nozzle; a “suction” nozzle having a mouth facing an upper surface of a substrate; or a substrate holder operable to rotate a substrate such that the suction mouth of the suction nozzle is located at a position forward of the open end of the supply nozzle. Therefore, it is submitted that the Saito reference does not anticipate amended independent claim 18. Furthermore, because the JP ‘523 reference, the Kobayashi reference, and the Mitsumori reference also do not teach or suggest these features, these references provide not apparent reason to modify the Saito reference so as to obtain the invention recited in amended independent claim 18.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. However, if the Examiner should have any comments or suggestions to help speed the prosecution of this application, the Examiner is requested to contact the Applicant's undersigned representative.

Respectfully submitted,
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